Original Research

Successful implementation of a performance-related audit tool for sonographers

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Abstract

A robust, sustainable audit programme for diagnostic ultrasound is hard to implement and establish. It requires time and resources to develop and to be relevant to clinical practice. There is a need for all ultrasound practitioners to undertake continuing professional development that underpins their roles and responsibilities within the workplace. A project group was established to evaluate how sonographers undertake Continuing Professional Development, with a view to understanding if implementing a performance-related audit process could support Continuing Professional Development. The group reviewed their clinical practice with an aim of developing a clinical governance and audit programme that could support both the needs of the service and sonographers alike. Our project has demonstrated that the implementation of this audit and case review process has positively contributed to our service and provided a more transparent and tangible account of sonographer performance.

Keywords: Audit, peer review, continuing professional development, ultrasound

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Introduction

It is well documented that a robust, sustainable audit programme for diagnostic ultrasound is hard to implement and establish, and that there is no one accepted method of performing a review of practice.[1,2] However, the need for establishing standards and measuring quality in this highly operator dependent field of imaging has never been greater.

As clinical leads and managers of a busy and diverse ultrasound service, in which the majority of examinations are performed and reported by sonographers, it is important to know what the expected and achievable department standard is. Not only does the standard provide evidence for various contracts in place with commissioners, but it also provides a benchmark against which sonographers can be measured and can measure themselves. Whilst issues of failing competency are rare, they are incredibly difficult to deal with if there is no known standard of practice within a department.

Many departments are facing increasing competition from multiple providers delivering ultrasound services outside of the traditional radiology department setting. Contracts to provide services are awarded based on a provider's ability to deliver examinations within time frames and in response to local Clinical Commissioning Groups' (CCGs) requirements, usually under the Any Qualified Provider (AQP) process. In an effort to ensure quality is not compromised most AQP contracts have an element of required audit within them. Where questions about competency of service providers are raised, the results of in-house audit programmes can be used to highlight to commissioners and service users any quality issues that need to be addressed. The local audit and standard process can be used as a benchmark tool for such a comparison of practice, whilst at the same time reassuring the local NHS provider that patients are being treated with parity, regardless of which service is accessed.

The implementation of a clinical governance and audit process within a diagnostic ultrasound department should also benefit the sonographers and radiologists whose work is under scrutiny. An audit process should be a process of review, learning and improvement for both the service and individuals involved in its provision. There is a requirement from the Health and Care Professions Council (HCPC) that all registrants undertake Continuing Professional Development (CPD).[3] Developing an audit process that supports CPD and consequently improves patient care is required to balance both service and sonographer needs whilst optimising the use of time and resources.

Aims

Therefore, the introduction of an audit and case review process into the ultrasound department of Hull and East Yorkshire Hospitals NHS Trust had two aims:

- Provide a robust, sustainable and useful audit and case review process that identifies needs for service improvement that will ultimately lead to better patient care.
- Provide a process of review and learning that contributes positively to sonographers' CPD.

The arguments for implementing such a clinical governance and audit process within the department are compelling. However, it was recognised that sonographers needed to be engaged with the process for it to have a positive impact and to be a truly useful tool for both service reviews and CPD.

Revalidation and CPD

Revalidation was talked of as being 'an MOT test for doctors'.[4] The Chief Medical Officer's report based on his *Review of medical revalidation: a call for ideas*[4] asks a key question.

> ''Should doctors'' performance be assessed in addition to, or as part of, the annual NHS appraisal? What purpose should appraisal of clinical practitioners have: should it be primarily for governance, with a mainly summative structure and handling, or should it be – as at present – primarily for developmental purposes, with a mainly formative structure and handling? Can it do both at the same time?[5]

In the Shipman Inquiry, Smith[6] called for the introduction of a knowledge-based assessment as part of doctors' revalidation. It is logical now that, as we move to making workplace-based assessments, the means of assessing our junior doctors' competence, senior doctors and sonographers should face similar assessments. This is the aim of the HCPC regular CPD audit that occurs every two years for the registered sonographers. The HCPC require all registrants to continue to develop knowledge and skills whilst registered.[3]

The Department of Health has stated, 'Continuing Professional Development (CPD) should be a partnership between the individual and the organisation'.[7] A partnership implies some synergy between the requirements of the Trust and the learning needs of the individual sonographer, although there is scope for some conflicts of interest. This balance is essentially the structure of the annual appraisal and agreed learning objectives are required, which meet the needs of both service and individual requirements.

The Society and College of Radiographers (SCoR) defines CPD as follows[8]:

'An ongoing professional activity in which the practitioner identifies, undertakes and evaluates learning appropriate to the maintenance and development of the highest standards of practice within an evolving scope of practice'.

This means CPD learning should be understood in its widest sense; individuals will often have a preferred approach to learning but must recognise that a wide range of learning activities can contribute to CPD. Formal programmes of learning, learning events or self-directed learning are an essential part of CPD, but learning is only a part of the CPD process. CPD is a professional process and must be evidenced by an evaluation of its contribution to practice, not simply by documentation of learning or educational achievement. CPD is a professional, not an educational, activity.

Therefore, to satisfy both sonographer and service requirements, plus develop a method which can confidently audit clinical practice, a clear need for a supported peer-review process was identified. As managers and clinical leads, we needed to know how best to establish this and what method of review would best support sonographer CPD.

CPD in practice

The traditional and long-standing method of case review and learning for sonographers within our Trust was unstructured and based on objective setting at the annual appraisal. Feedback to individuals was given in cases where there may have been some disagreement at subsequent follow up, but little structure review had been established. It was acknowledged that this process was subjective and gave no basis for evidence of standard expected sonographer practice. There was little evidence that this process contributed to CPD or service improvement.

As part of a developing non-obstetric ultrasound service, it was acknowledged that a more robust and useful audit and case review process was required. The engagement of the team was required to ensure that any system developed met the learning needs of individuals and improved the quality of the service. A series of project meetings throughout 2012 and early 2013 with the sonographers and consultant radiologist were established. The meetings provided opportunity to investigate the sonographers' current experience and perception of assessment. The meetings acted as a catalyst to develop a new approach to sonographer assessment within our department, which promotes a professional development opportunity for the team.

Service review

There were three broad questions asked in the project meetings as detailed below. Throughout the project, each question has been explored, both through questionnaires and group discussion.

Project questions

1. What self-assessment practices do sonographers currently engage in?
2. Can sonographers review their own practice?
3. How can sonographer performance best be measured in the future?

Results

Initially, during the first meeting, sonographers were asked to discuss CPD and to document their beliefs. The following comments were received:

- CPD was regarded as a process through which health care professionals could enhance their knowledge, skills and professional performance equally.
- On average the sonographers felt that the CPD framework of the HCPC had not kept pace with the increased diagnostic responsibility of the sonographer.
- The CPD framework for registration with HCPC is too prescriptive.
- Providing evidence of CPD is difficult.

The group were then asked a series of questions, spanned over a series of three meetings. Working through the projects, we wanted sonographers to question their beliefs and evaluate other methods which could support CPD and service improvement.

Project question 1

What self-assessment practices do sonographers currently engage in?

Sonographers from within the trust were invited to join the project group. There were 12 replies from 20 emailed invitations. The 12 responders had been qualified sonographers for a total of 180 years, mean 15. They had worked collectively at Hull and East Yorkshire NHS Trust for 201 years, an average of 18 years. Two were part time and 10 worked full time.

It was clear that the reasons for performing CPD were overwhelmingly positive. There is a strong sense of professional pride amongst the cohort of sonographers, wanting to do the best for their patients and themselves.

Work-based learning

Sonographers were asked to rate their preferred method of work-based learning (WBL). The options were rated by the sonographers on a scale of 1–5, a score of 0 representing no preference, and a score of 5 representing a preference for this type of learning. They were asked to give an approximate number of minutes per week they devoted to each type of learning. The scores from each sonographer were collated and an average was calculated (see Table 1).

Table 1 suggests that the sonographers gain the most value in their WBL from 'learning on the job' with other members of the team. This is following discussion with others or supervising others as they carry on their everyday work. It is clear that work based learning is valued.

Table 1 Work-based learning

Type of learning	Percentage of working hours per year spent undertaking activity	Ranked preference 0–5
Discussion with others	5.9%	4.8
Coaching from others	1.6%	4.8
Learning by doing	13.4%	4.7
In service training	2.7%	4.3
Staff supervising	22.2%	4.1
Multi-source feedback	0.47%	4
Work shadowing	2.9%	3.9
Secondments	0%	3.7
Analyzing significant events	2.4%	3.6
Peer review	0.5%	3.5
Visiting other departments	0.05%	3.2
Case study	2.4%	3
Job rotation	2.2%	3
Self-assessment	1.7%	3
Clinical audit	0.97%	2.8
Journal club	0.1%	2.8
Reflective practice	3.6%	2.7
Evidence of learning activities	0.2%	2.5
Project work	0.15%	2.4

Project question 2

Looking at the preference rating, the three highest ranked WBL activities were identified. This focussed the project to develop an audit process that utilised these activities and as such may then enhance sonographers' learning and CPD opportunities. However, an understanding of how sonographers could review their own practice was required to evaluate whether a self-review process would be useful. A self-review process in this context is considered to be a method of reviewing sonographer activity by sonographers and includes peer assessment.

Can sonographers review their own practice?

The sonographers were asked to score statements on the process of self-review of practice, retrospective review of their own cases and reflecting on their performance. Only 10 sonographers responded to this with one abstaining from question E. The options were rated by the sonographers on a scale of 0–5, a score of 0 representing disagreement, and a score of 5 representing total agreement with this statement (see Table 2).

Several tools that could be used to measure clinical practice were evaluated. Sonographers were asked to evaluate the usefulness of each practice assessment tool with regard to the likelihood of them using the individual tool and the potential usefulness in practice (see Table 3).

The Discrepancy Reflection Template and the 5% Peer Review Audit Template were the most popular choices, and also most likely to contribute to learning and professional development. This further focussed our work on developing an audit tool that could be used to measure clinical practice.

Table 2 Practice review

	Question	Disagree 0	1	2	3	4	Agree 5
A	It is reasonable to expect sonographers to perform a self-review of practice.			2	2	4	2
B	I would find this work useful	1		2	2	3	2
C	This completed work could be used to provide evidence of work-based learning	1			3	2	4
D	How many hours do you estimate it would take to review 25 cases?	Average number of hours 3 hours					
E	I would find the discipline of self-reflection a useful learning tool	1		2	2	1	3

Table 3 Practice assessment evaluation

	Most likely to undertake	Most useful learning tool	Likely to alter practice	Will contribute to HCPC framework
Discrepancy reflection template	9	10	9	11
5% peer review template	9	7	8	9
Self-review of practice	4	3	2	10
Disease detection rate (number of times a specific disease is detected)	4	3	2	10
Abnormal interpretation rate (number of times an abnormality is detected)	6	7	7	1
Second opinion rate (number of times a second opinion is sought)	5	4	5	
Symptom solution (number of times a diagnosis is made)	3	4	3	1

Table 4 Discrepancy assessment template

	Type of discrepancy
A	Observation
B	Interpretation
C	Poor imaging technique
D	Poor wording

	Grade of discrepancy
0	No discrepancy
1	Discrepancy with report – no action required
2	Discrepancy with report – report amended
3	Significant discrepancy with report – action required

In this context, the Discrepancy Reflection Template, 5% Peer Review Template and self-review of practice are described below:

Discrepancy Reflection Template. The Discrepancy Reflection Template has the option to categorise the type of discrepancy the reviewer has with the original report and images. The template also has the option for the reviewer to grade the discrepancy. The types and grades of discrepancy are given in Table 4.

5% Peer Review Template. The 5% Peer Review Template enables the reviewer to score the images and reports separately and used three categories: Good, Acceptable and Poor. The categories are defined by the reviewer's own standard and can be a limitation.

Self-review of practice. Reviewers are required to free text comment upon their images and reports.

Project question 3

How can sonographer performance best be measured in the future?

Several cases of hard copy images and reports were collated and the project team were asked to review. The sonographers were given a scoring template, modified from the Royal College of Radiologists (RCR) standards for double reporting and from the scoring system outlined in our local AQP contract document. There are obvious advantages to reviewing a real-time investigation live, but the team were aware that this has time and resource implications. If a sustainable audit of cases is going to be achievable, it has to be a simple and realistic proposition that is readily engaged with. Overall, the team were willing and able to engage with the process of hard copy case review of their peers' work.

Having reviewed the cases presented, the sonographers were asked to comment on the proposed scoring process for image quality and asked to comment on report quality using a proposed scoring system. The sonographers concentrated on the logistics of scoring report quality. They raised valuable points concerning the need to have the clinical details available at the time of the review as well as an understanding of any relevant patient factors that may have hindered the examination.

The project meeting discussions and results from the questionnaires gave a good understanding that a robust audit process could be devised and implemented. The process requires assessment of image and report quality as well as opportunity for case discussion and learning with peers. An audit tool has been devised and agreed. This process will not review all competencies required by a sonographer

to be practicing as a holistic health care professional but will ensure clinical learning is supported and quality standards for the service are met.

Discussion

Implementation

On a weekly basis, one of the team of sonographers is allocated a 3.5 hours session, where they review the images and reports of a random 5% of all non-obstetric practice from the previous week's activity using the agreed audit tool.

This tool has been written as a web-based programme by the Trust IT Department, which enables the patient information to be uploaded directly from the Trust Patient Information System, and the scores and comments are easily collated and exported for analysis.

Only three scoring categories are available in this audit system. These are Good, Acceptable and Poor. Any images or reports scoring 1 by the reviewer are communicated to the ultrasound manager for immediate attention. These cases are discussed at a monthly case review meeting.

Discrepancies and adverse events

In 2000, *An organisation with a memory* by the Department of Health[9] described how increasing patient safety by reducing error is a key priority of major health services. The RCR responded to this with the publication of *To err is human: the case for review of reporting discrepancies*[10] in 2001, recommending that discrepancy meetings form part of the process of audit within the radiology department. The environment created in these meetings is intended to be one of learning rather than blame. Learning from experience to prevent future recurrences is the key to clinical governance and discrepancy meetings are an extremely important way of doing this.

Audit review

With this in mind, monthly case review meetings have been established. The results of the weekly audits are collated, and any cases demonstrating a disagreement between the sonographer and the reviewer are brought to the meeting for review. The word discrepancy was changed to disagreement following the implementation of the case review meetings upon request of the sonographers. The word discrepancy has connotations of error for the team. In practice, it became evident that most issues related to disagreements as opposed to errors, and it was felt that the word disagreement should be used to better reflect the nature of the discussions.

The meetings are attended by as many sonographers and radiologists as possible. The meeting is chaired by the ultrasound manager or lead radiologist, who also has the casting vote if required. The cases with disagreements are presented and discussed. The previously agreed Discrepancy Reflection Template is used to direct discussion, although this has been renamed as the Disagreement Reflection Form in keeping with the previous discussion. The sonographers at the meeting have the final say on the type and grade of any disagreement. The sonographers vote on this and the majority decision is the final outcome. Learning points and actions are discussed and agreed by the team. Feedback is given to the individual sonographers by the ultrasound manager subsequent to the meeting.

The cases discussed and final outcomes are recorded electronically for feedback and review. Learning points highlight areas of weakness or knowledge deficit within the team and direct clinical presentations in future meetings. Action points have led to sonographers meeting surgeons and other health care providers as a means of increasing understanding of where their scans fit in patient management pathways. For their annual appraisal, the sonographers are required to review the previous year's case review outcomes and evaluate their average performance. Reflection and learning outcomes are an important part of this audit process as well as supporting CPD.

Ultimately, this audit process is now well established and has been beneficial to the service and ultrasound practitioners alike. Having a web-based system has certainly improved the efficiency of the audit process and has simplified collating the data for discussion. The importance of feedback to sonographers was not initially recognised but implementing self-review as part of their appraisal process ensures that all staff are included in some part of the process.

Conclusion

Performance of sonographers should be evaluated to document that their HCPC requirements have been met, that benchmarked outcomes compare favourably with their peers, and that they possess sufficient skills to practice safely and effectively without undue reliance on further scans. Unless performance is measured and compared with that of peers, deficiencies and best practices will not be identified and opportunities for improvement will not exist.

The benefits of this performance-related audit are difficult to measure but have been positive. This audit process has:

1. Encouraged regular open discussion in a safe environment, which enhances knowledge.
2. Enabled performance through average scoring at these meetings to be linked with the annual appraisal.
3. Provided a more transparent and tangible account of sonographer performance.

Clinical governance and audit processes are time and resource intensive but are an essential and valuable part of a diagnostic ultrasound service. They can highlight weaknesses – and strengths – in the practice of ultrasound practitioners and can provide a benchmark for standards that are invaluable in assessing quality in this complex field of imaging.

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